
APPARATUS AND METHOD FOR MANUFACTURING FIBER GRATINGS

ABSTRACT

5 In accordance with the apparatus and method of the present invention an optical
fiber is heated and twisted to produce a periodic modulation of the dielectric constant
along the fiber axis. This structure can be used in any application that utilizes Bragg
grating optical fibers. A preform is drawn through a heater and the resulting optical fiber
is twisted about its longitudinal axis. The refractive index modulation in the optical fiber
10 arises from birefringence induced by stress in the optical fiber that is twisted after being
subjected to an uneven heat distribution during the drawing process. The refractive index
is modulated by drawing and twisting the optical fiber from a specially constructed
preform which is non-cylindrically symmetrical.